



## Building an Asia-Pacific Knowledge Bank



An Outcomes Paper from the  
2009 Emerging Leaders Dialogue  
Beijing, 21-24 October 2009



## Background

It is widely acknowledged that in the 21<sup>st</sup> century, knowledge infrastructure will drive the success of economies worldwide. The best chance for securing the economic strength of the Asia-Pacific region—and with it the social and political stability needed for human wellbeing—is through innovation and cooperation among the nations and peoples of the region. With this in mind, Griffith Asia Institute, Griffith University, and Peking University, supported by the Queensland state government initiated a regional dialogue to bring together representatives from across the region for discussion and networking.

The first of these, a Second-track Dialogue titled Our Future Knowledge Economy, was held in March 2009. This Dialogue drew together leading academics, bureaucrats and businesspeople from across the region to tease out the conceptual issues that inhere in the notion of 'sharing knowledge in the 21<sup>st</sup> century'. A deliberately broad question was chosen to guide the dialogue: What are the requirements for knowledge infrastructure for the Asia-Pacific region in the 21<sup>st</sup> century? It aimed to foster wide-ranging discussion towards identifying what is needed for innovation and cooperation in building mutually rewarding relationships within the Asian regional community. Organisers identified one key question from the Second Track Dialogue to best articulate the connection between innovation and cooperation: What *scaffolding* is required to share knowledge and to build the requisite knowledge infrastructure of the 21<sup>st</sup> century within the region?

The Emerging Leaders Dialogue was a three day dialogue held at Peking University from 21 to 24 October. Organisers of this second dialogue drew from ideas raised in the first Dialogue to focus this discussion on how communities within the region can best share and communicate knowledge across geopolitical boundaries. The March Dialogue had recognised that because geopolitical boundaries can be a structural hindrance to the free flow of knowledge and innovation, a plan is needed to build supranational organisational scaffolding that will connect knowledge infrastructure across locations within the region. That Dialogue identified how building supranational organisational infrastructure requires scaffolding that is mindful of differences not only in culture and language but also in organisational arrangements in political and educational systems in locations across the region.

Choosing 'Emerging Leaders' to attend the October dialogue was an important consideration. In July 2009, 30 PhD students from a variety of disciplines ranging from medicine to law, were selected from Australia and around the region to participate. The rationale for selecting such a range of disciplines was that the knowledge sharing in the region in the 21<sup>st</sup> century will reach across all academic disciplines and fields of scholarship, not just those that directly concern the Asia-Pacific, such as international relations.

This Dialogue's emphasis was on the practical: how we can begin to make tangible and meaningful connections that promote sharing of knowledge within the region in the 21<sup>st</sup> century. It used as a guide the outcomes of the Second Track Dialogue which was structured to move towards specific models that connect two keywords: innovation and cooperation. The Dialogue's discussion of how best to promote the sharing of knowledge in our region similarly moved towards creation of several models of an Asia-Pacific Knowledge Bank, based on four possible scenarios. Participants saw the need to identify both the

roadblocks and the building blocks for creating models for a sustainable Asia–Pacific Knowledge Bank, within the larger context of the knowledge economy.

Associate Professor Anne Cullen from Bond University in Queensland was invited to act as dialogue facilitator. The Dialogue used the Participatory Future Scenario–building method for discussion. This method’s format of ‘dialoguing’ issues uses the technique of group brainstorming broad issues and problems, which then become the foundation for more concrete modeling of possible future scenarios. As Adam Gordon explains,

Scenarios are narratives of alternative environments in which today’s decisions may be played out. They are not predications. Nor are they strategies. Instead, they are more like hypotheses that ask ‘what if?’ in a disciplined way, forcing the acknowledgement of new and unforeseen opportunities for an organisation.<sup>1</sup>

Scenarios enable key challenges to be explored using a range of perspectives and hypotheses. Both small groups and large multinationals such as Shell have used this approach to bridge the uncertainties of the future and the issues of today by projecting forward a decade or so, in incremental steps, to capture the gamut of factors that may influence how the objective at hand develops at each stage of its progress. The Dialogue organisers intended that the penultimate outcome of the three-day event would be four hypothetical, possible scenarios for modeling the development of an Asia–Pacific Knowledge Bank, with variation across the four in their level of ‘optimism’.

These models were a very important part of the Dialogue – its process and its outcome. However the very nature of the Dialogue was itself, by design, intrinsically important. The Dialogue provided an environment where people from around the region could meet and develop personal connections, while exploring and developing ideas together. As such, the Dialogue was itself an example of the *scaffolding required to share knowledge and build knowledge infrastructure for the 21<sup>st</sup> century*, which was the very purpose of the Dialogue. Further, since both the concept of scenario modeling and the style of discussion that produced these models can be applied across the board to discussions on regional infrastructure–building, both make valuable conceptual contributions to the ‘scaffolding for knowledge sharing’ project for building an Asia–Pacific Knowledge Bank.

Part 1 of this outcomes paper identifies possible road blocks to the project, It addresses general concerns in promoting any kind of regional infrastructure for a knowledge economy and then turns to specific concerns in creating a knowledge bank. Part 2 of this paper summarises the building blocks that are required. It begins with general issues in relation to the successful creation of knowledge–economy infrastructure and then turns to the more specific matters that concern development of a knowledge bank. Part 3 of this paper details the future scenarios for a knowledge bank that were developed by participants during the Dialogue in October 2009.

---

<sup>1</sup> Adam Gordon, “Scenario-building Workshop- How to Build and Use Scenarios”. [www.futresavvy.com](http://www.futresavvy.com)

## PART 1: KNOWLEDGE SOCIETY AND KNOWLEDGE INFRASTRUCTURE: CONCEPTS, BUILDING BLOCKS AND ROAD BLOCKS

### Introduction

The evolution of the world's advanced industrial states toward an "information society" or "knowledge society" has been noted since the 1960s. The concept gained widespread currency with policymakers in the 1990s alongside the revolution in information and communications technologies (ICTs) and intensification of the globalisation process after the end of the Cold War in 1991. By the mid-1990s, it had become clear in leading OECD countries that knowledge-intensive economic sectors would be the key drivers for future GDP growth. The idea of the "knowledge-based economy" (KE) was first theorised in a systematic way by the OECD in 1996,<sup>2</sup> and has since become a major focus of attention by the World Bank and World Economic Forum (WEF). The emphasis of these organisations has tended to be upon the state-centric task of building KEs to enhance "national competitiveness" in the global economy.

The KE is typically divided into its four well-known "pillars" – institutions, human resources, innovation systems and ICT infrastructure – and states are encouraged to build capacity in these areas. To this end, the World Bank has developed a set of league tables with rankings and scores for countries to measure their relative and absolute progress across the four pillars, and overall as KEs.<sup>3</sup> This introduces a hierarchical dynamic that invariably has leading OECD states sitting at the top of such tables, with the poorest and most disadvantaged countries at the bottom. This serves to entrench existing inequities in the global economy and engenders conflict and resentment rather than cooperation.

Many of the countries of the East Asian region, such as Japan, South Korea, Taiwan, Singapore, Hong Kong, Malaysia, Australia and New Zealand have made great strides in their transitions to knowledge-based economies. However, consistent with general patterns of socio-economic development, there remains great disparity across the region, both between and within countries. The participants in the Australia–China Futures Emerging Leaders Dialogues held in October have indicated a strong intention to move the debate away from its currently very narrow economic focus to a more holistic, comprehensive and equitable one that also respects and values the social and cultural diversity of the Asia–Pacific region. In line with the recommendations from the Outcomes Paper from the Second Track Dialogue held in Beijing in March 2009, the purpose of this section of the paper is to assess the potential "road blocks" and "building blocks" for the development of a regional knowledge infrastructure, and more specifically, a regional "knowledge bank".

The Outcomes Paper for the Second Track Dialogue poses a number of broad guiding questions: How can we best share knowledge and communicate that knowledge effectively across geopolitical boundaries? What supranational organisational scaffolding might connect knowledge infrastructures in singular geopolitical locations to others? How would this scaffolding take into account the important differences in cultures and languages as well as

---

<sup>2</sup> See OECD, *The Knowledge-Based Economy*, Paris: OECD, 1996.

<sup>3</sup> See World Bank, 'KEI and KI indexes (KAM 2009)', 2009, [http://info.worldbank.org/etools/kam2/KAM\\_page5.asp](http://info.worldbank.org/etools/kam2/KAM_page5.asp)

political and educational arrangements? It is important to note that translating the KE concept to the supranational or regional level via a “knowledge bank” is a new and “cutting edge” enterprise, with no established framework in the policy and academic literature on which to draw. The following is necessarily drawn and adapted from literature and ideas relating to knowledge infrastructure at the national, sub-national and organisational levels. Technical consideration of regional knowledge “scaffolding” in terms of hard ICT infrastructure requirements and associated legal-regulatory issues is beyond the scope of this paper.

## Knowledge Society

In moving from a narrow economic focus, it is useful to recognise that economies are endogenous to the social and political conditions that give rise to them. As noted in both the Background Paper and Outcomes Paper from the Second Track Dialogue, the socio-political sphere is analytically prior to the economic sphere. The underpinnings of a knowledge economy are therefore to be found in a knowledge society, which encompasses a knowledge infrastructure. The knowledge “society” concept is qualitatively much richer than that of a knowledge “economy”. A basic distinction between a knowledge economy and a knowledge society is that the former sees knowledge as product or content, while the latter sees it primarily as a contextual process, transfer or flow.<sup>4</sup> A similar distinction could be made between knowledge as a commodity and knowledge considered as social or human capital.<sup>5</sup> There can be no economic product of knowledge without the social processes that gave rise to it.

There is no consensus, however, on the definition of a knowledge society and its attributes.<sup>6</sup> The following definition is adapted from Sharma et al. A knowledge society may be broadly conceptualised as one that (1) has a population possessing high absorptive capacities for knowledge and innovation; (2) is characterised by complex chains of knowledge ‘creation, production and distribution including inter-functional collaboration’; (3) is a dynamic and sustainable learning community that emphasises creativity and innovation; and (4) encompasses a knowledge economy as outlined above.<sup>7</sup> These four attributes may be considered the aims or goals for transition or evolution toward a knowledge society. A dynamic and productive knowledge economy in the Asia–Pacific region will need to be based on a supportive knowledge society.

It is also important to elucidate the normative assumptions underpinning this vision of a regional knowledge society. The first, as expressed in the Universal Declaration of Human

---

<sup>4</sup> Miltiadis D. Lytras and Athanasia Pouloudi, ‘Towards the Development of a Novel Taxonomy of Knowledge Management Systems from a Learning Perspective: An Integrated Approach to Learning and Knowledge Infrastructures’, *Journal of Knowledge Management*, vol. 10, no. 6 (2006), pp. 69-70; Frank Moulaert and Abdelillah Hamdouch, ‘New Views of Innovation Systems: Agents, Rationales, Networks and Spatial Scales in the Knowledge Infrastructure’, *Innovation*, vol. 19, no. 1 (2006), pp. 13-14.

<sup>5</sup> David Charles, ‘Universities as Key Knowledge Infrastructures in Regional Innovation Systems’, *Innovation*, vol. 19, no. 1 (2006), pp. 118-21.

<sup>6</sup> Daniela Rohrbach, ‘The Development of Knowledge Societies in 19 OECD Countries between 1970 and 2002’, *Social Science Information*, vol. 46, no. 4 (2007), p. 656.

<sup>7</sup> Ravi S. Sharma, Elaine W.J. Ng, Matthias Dharmawirya and Chu Keong Lee, ‘Beyond the Digital Divide: A Conceptual Framework for Analyzing Knowledge Societies’, *Journal of Knowledge Management*, vol. 12, no. 5 (2008), p. 151.

Rights (UDHR), is the right of all people to freedom of opinion and expression. The World Summit on the Information Society (WSIS) has developed this theme further to include the 'freedom to hold opinions without interference and to seek, receive and impart information and ideas through any media and regardless of frontiers'. The WSIS argues that 'communication is a fundamental social process, a basic human need and the foundation of all social organization'. Rights to freedom of expression and access to information and communication are central to the knowledge society.<sup>8</sup>

Following from this is the access and equity issue inherent in the right to 'affordable information infrastructures facilitating access to essential information'.<sup>9</sup> Such "essential" information refers to that which is required for basic human needs, and for trade and socio-economic development. In a knowledge society, this information is considered a public good. Perhaps more contentiously, essential information is also that required to exercise fundamental political and civil rights as codified in the international human rights regime. The normative underpinnings of the knowledge society may be summarised in two ethical principles: (1) the distribution of knowledge must allow equal opportunities for all people to access essential information; (2) equal opportunities for access to essential information also implies limits to possible constraints that may be applied, such as censorship or socio-economic structures that inhibit access to information by individuals or groups. The rights of creators or owners of content are secondary to these fundamental ethical principles.<sup>10</sup>

### **Knowledge Infrastructure: Roadblocks and Building Blocks**

A well-functioning knowledge society is underpinned by a quality knowledge infrastructure. Knowledge infrastructure has been conceptualised in a number of ways. Policymakers tend to regard it simply as the provision and equitable access to hard ICT infrastructures. The problem of the "digital divide" is generally understood in this context. There is no doubt that hard ICT infrastructure is important in that there can be no contemporary knowledge society without it. But the simple presence of ICTs and the consumption of digital content do not imply a knowledge society as defined above, the hallmarks of which are creativity, interactivity and innovation.<sup>11</sup> The general public may access and passively consume information and entertainment online rather than from traditional media or other sources, but this in itself does not contribute to a knowledge society.

Other scholars view knowledge infrastructure strictly in institutional and organisational terms. Hamdouch and Mouleart, for example, define knowledge infrastructure as an "institutional complex" encompassing the wide range of organisations, institutions and networks (and their specific constituents) which contribute to the constitution and evolution of the knowledge base of a given spatial area, as well as the resources and competencies fuelling its innovative capabilities and dynamics'.<sup>12</sup> The specific actors in this context are universities and other higher education institutions, public research

---

<sup>8</sup> Quoted by Peter J. Lor and Johannes J. Britz, 'Is a Knowledge Society Possible without Freedom of Access to Information?', *Journal of Information Science*, vol. 33, no. 4 (2007), p. 388.

<sup>9</sup> Lor and Britz, 'Is a Knowledge Society Possible without Freedom of Access to Information?', p. 392.

<sup>10</sup> Ibid., pp. 388, 392-94.

<sup>11</sup> Ibid., pp. 389-90.

<sup>12</sup> Abdelillah Hamdouch and Frank Moulaert, 'Knowledge Infrastructure, Innovation Dynamics, and Knowledge Creation/Diffusion/Accumulation Process: A Comparative Institutional Perspective', *Innovation*, vol. 19, no. 1 (2006), p. 27.

organisations, private research centres, consulting firms, manufacturing and service firms, and also collaborative organisations such as alliances and joint ventures.<sup>13</sup> Again, these institutions and organisations are another essential element of knowledge infrastructure, but this narrow, economically focused, and arguably elite view of knowledge infrastructure does not adequately engage with a rich and holistic conception of a knowledge society.

Sharma et al. posit 13 dimensions to a holistic knowledge infrastructure, from which the following discussion is adapted. Some of these dimensions give rise to a number of potential building blocks and roadblocks when considered in a supranational, regional context for Asia–Pacific:

### **(1) Geographical proximity to knowledge networks and markets**

A knowledge society requires proximity to a critical mass of both knowledge products and services, and the human and relational knowledge networks that create them.<sup>14</sup> As theorised most famously by Richard Florida,<sup>15</sup> creative classes of knowledge workers tend to cluster in particular sub-national regions or cities that are liberal, diverse and welcoming of difference. Creativity and innovation are also dependent on the tacit knowledge engendered by trust and small informal networks that rely in part on actual physical proximity and collaboration. Park points out that spatial proximity and nodal cities retain their importance even when across the board access to communications in a society improves.<sup>16</sup>

#### *Roadblocks and building blocks:*

This dimension of knowledge infrastructure presents both a building block and a roadblock. The Asia–Pacific region contains a number of the world's most important nodal agglomerations, knowledge networks and its largest consumer markets. In this sense, the first building block is already in place. On the other hand, the Asia–Pacific region is incredibly diverse and also includes some of the world's most peripheral and impoverished areas that are spatially remote from current and likely future knowledge clusters. This presents a serious and immutable roadblock to an equitable knowledge society in a region as large, and with such wide development disparities, as the Asia–Pacific.

### **(2) Effective knowledge diffusion**

The second dimension of knowledge infrastructure holds that knowledge flows, diffusion and cross-fertilisation are a necessary condition for a knowledge society. Knowledge flows are 'facilitated by telecommunications networks, a thriving content industry and a healthy media sector'.<sup>17</sup> This dimension has both a hard ICT and a freedom of speech and expression element.

#### *Roadblocks and building blocks:*

---

<sup>13</sup> Hamdouch and Moulaert, 'Knowledge Infrastructure', pp. 27-34.

<sup>14</sup> Sharma et al., 'Beyond the Digital Divide', p. 156.

<sup>15</sup> See Richard Florida, *The Rise of the Creative Class*, New York: Basic Books, 2002; Florida, *The Flight of the Creative Class*, New York: HarperCollins, 2005.

<sup>16</sup> Sam Ock Park, 'Knowledge, Networks and Regional Development in the Periphery in the Internet Era', *Progress in Human Geography*, vol. 28, no. 3 (2004), pp. 283-84.

<sup>17</sup> Sharma et al., 'Beyond the Digital Divide', p. 156.

Again, this building block is already in place across those mainly urban parts of the region that have adequate ICT access and in countries with a relatively free media and Internet. This is also a roadblock in the sense that many people across the region do not have adequate ICT access and, depending on the content of knowledge flows, it may be censored or restricted in authoritarian states without free media.

### **(3) ICT accessibility**

The third dimension of knowledge infrastructure refers to the availability and affordability of computers with broadband connectivity and multimedia capabilities. Some have likened this requirement to ICT “universal suffrage”.<sup>18</sup>

#### *Roadblocks and building blocks:*

Again, most of the more affluent areas of the Asia–Pacific region have very high levels of broadband connectivity and computer access such that this building block could be considered to be in place. Yet, there is very limited access in poorer and remote parts of the region. This is the problem of the digital divide, or what some have termed the “immaterial asset gap”.<sup>19</sup> Extending connectivity to all people in the region to meet the ethic of equity is a major roadblock to a sustainable knowledge society in the region.

### **(4) Rule of law and shared norms of behaviour**

This dimension refers to the transparency, impartiality and consent-based nature of the social relationships pertinent to knowledge creation and diffusion, both people-to-people and people to organisation. Sharma et al. argue that ‘common understanding and acceptance of norms is imperative for the sanctioning of knowledge creation and transfer for the purpose of commerce and industry’.<sup>20</sup>

#### *Roadblocks and building blocks:*

This constitutes a serious roadblock to a regional knowledge infrastructure in the KE context. International law is weak, decentralised and without effective enforcement. States rarely enter into binding agreements on matters deemed to be of genuine strategic or economic interest. In the absence of enforcement, shared understandings and norms both for, and of behaviour, are necessary for effective relationships that require trust, such as knowledge sharing. There is a large disjuncture here between Western liberal states, such as Australia, with their strictly legal view of intellectual property and the sanctity of contract, and East Asian states where contracts are evolutionary and business culture is often based on personal or family relationships. The nature of creativity and innovation as commonly understood in the academic and business communities is also very much a cultural construct of Western liberal-capitalism that places little value on knowledge, wisdom or understanding grounded in “non-rational” or non-utilitarian beliefs and assumptions.

### **(5) A balanced intellectual property (IP) regime**

---

<sup>18</sup> Sharma et al., ‘Beyond the Digital Divide’, p. 157.

<sup>19</sup> Lor and Britz, ‘Is a Knowledge Society Possible without Freedom of Access to Information?’, p. 388.

<sup>20</sup> Sharma et al., ‘Beyond the Digital Divide’, p. 157.



This dimension refers to the existence of an intellectual property regime that encourages innovation by protecting creative works and rewarding commercialisation, while flexible enough to allow the dissemination of useful knowledge for the advancement of the society.<sup>21</sup> It has been noted that knowledge in its immaterial or conceptual form is 'purely non-rivalrous, that is, there is essentially zero marginal costs to adding more users. Yet once materially embodied and encoded, such as in learning or in applications or processes, knowledge becomes costly in time and resources'.<sup>22</sup> Peters points out that the 'private provision of knowledge normally requires some form of legal protection, otherwise firms would have no incentive to produce it'.<sup>23</sup>

*Roadblocks and building blocks:*

This dimension could be viewed as both a building block and roadblock. It seems likely that any supranational knowledge infrastructure related to IP would be subject to the WTO Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS).<sup>24</sup> This would make it easier to put such a knowledge infrastructure regime in place in that a regulatory framework is already negotiated. On the other hand, this could be a roadblock in that it might restrict regional public knowledge flows in commercially sensitive areas.

## **(6) Political vision and strategy**

Sharma et al. point out that 'political vision is a strategic impetus that enunciates how the leaders of a society wish to direct infrastructure, governance, human development and nation-building activities in order to achieve the shared vision'.<sup>25</sup>

*Roadblocks and building blocks:*

Politics is perhaps not the roadblock it might at first seem to be in a regional context. This view is based on the reality that no government would willingly allow genuinely sensitive strategic, security or economic information to be disseminated in a regional knowledge infrastructure. Similarly, adherence to the TRIPS regime would also tend to eliminate commercial conflict from such an arrangement. Political cooperation would therefore tend to be a technical issue that might be able to use existing channels such as the APEC framework. The existence of a comprehensive regional institution such as APEC is a natural political building block for a knowledge infrastructure. Given the prominence of the KE concept, a number of capable states such as Australia, China, Korea or Malaysia would have the interest, vision and resources to lead on this issue.

## **(7) A business environment that rewards innovation**

The seventh dimension refers to 'open and fair policies and rules for business practices (public tenders), competition, regulatory regimes, taxation and the provisioning of public services'.<sup>26</sup>

---

<sup>21</sup> Sharma et al., 'Beyond the Digital Divide', p. 157.

<sup>22</sup> Michael A. Peters, 'Classical Political Economy and the Role of Universities in the New Knowledge Economy', *Globalisation, Societies and Education*, vol. 1, no. 2 (2003), p. 162.

<sup>23</sup> Peters, 'Classical Political Economy and the Role of Universities in the New Knowledge Economy', p. 162.

<sup>24</sup> See Rajah Rasiah, 'TRIPS and Capability Building in Developing Economies: Critical Issues', *Journal of Contemporary Asia*, vol. 33, no. 3, 2003, pp. 338-62; Peter J. Lor and Johannes J. Britz, 'Is a Knowledge Society Possible without Freedom of Access to Information?', *Journal of Information Science*, vol. 33, no. 4 (2007), p. 393.

<sup>25</sup> Sharma et al., 'Beyond the Digital Divide', p. 158.

*Roadblocks and building blocks:*

As above, this dimension is a building block in that the successful economies of the region fulfil this requirement to greater or lesser degrees, and most continually strive to achieve positive reform in these areas. The presence of less-developed and/or more corrupt or poorly governed countries in the region, as in most other pertinent dimensions of the knowledge society, mean that there is great regional disparity and inequity that forms a road block in this aspect of the knowledge infrastructure.

### **(8) Higher education**

It is well known that universities are the 'key institutions that act as drivers of innovation and value creation'.<sup>27</sup> They play the crucial role of educating future scientists, researchers and managers, and at the same time provide the necessary infrastructures and expertise for both basic and applied research activities.<sup>28</sup>

*Roadblocks and building blocks:*

Regional universities are clearly an important building block, perhaps the most important, for an Asia-Pacific knowledge society. Compared with other sectors of their domestic societies, universities are cosmopolitan, and are already engaged in regional networks and many collaborative activities that are constantly being developed and expanding.

### **(9) Research and development**

This dimension is defined by Sharma et al. as the 'formal and funded programs for scientific, technical and rigorous investigations into the pressing problems of society'. A successful knowledge society will place a premium on R&D activities.<sup>29</sup> The R&D sector includes public and private research centres and institutions, consulting firms, supporting manufacturing and service firms, and especially collaborative organisations and arrangements, which are often transnational, such as joint ventures and strategic alliances.<sup>30</sup>

*Roadblocks and building blocks:*

Similar to the above, the region's wealthier countries are robustly funding and pursuing sophisticated R&D systems and infrastructures that incorporate both national and international collaboration between industry, universities, and public and private research centres. This is an important building block for a regional knowledge infrastructure that is to some degree already in place. Again, this raises the equity roadblock that R&D facilities tend to cluster in "science towns" and "centres of excellence" in which the less-developed countries of the region are unable to fully participate due to lack of resources, human capital and funding.

### **(10) Human rights and freedoms**

---

<sup>26</sup> Ibid., p. 158.

<sup>27</sup> Ibid.

<sup>28</sup> Hamdouch and Moulaert, 'Knowledge Infrastructure', p. 27; Marius T.H. Meeus, Leon A.G. Oerlemans and Jerald Hage, 'Industry-Public Knowledge Infrastructure Interaction: Intra- and Inter-Organizational Explanations of Interactive Learning', *Industry and Innovation*, vol. 11, no. 4 (2004), p. 329.

<sup>29</sup> Sharma et al., 'Beyond the Digital Divide', pp. 158-59.

<sup>30</sup> Hamdouch and Moulaert, 'Knowledge Infrastructure', pp. 27, 34.

This tenth dimension for a knowledge infrastructure refers to the human rights and freedoms codified in the UN international human rights regime.

*Roadblocks and building blocks:*

This would appear to be a roadblock in the sense that a number of countries of the region suppress, restrict or censor information deemed sensitive by their governments.

The content flows in an open regional knowledge infrastructure would potentially be blocked by some governments, although it is unlikely that a meaningful regional knowledge infrastructure would become a reality unless all states agreed to restrict certain types of information deemed inappropriate or sensitive by other states.

**(11) Role of the mass media**

Mass media is an important dimension in a knowledge infrastructure. Its role 'is the dissemination of public interest information as well as the accompanying discussion and debate that comes with it in order to support an open and informed society that can participate in civic decisions'. A ubiquity of responsible mass media is essential. Media literacy among the population is also important, which to some degree relies on education levels within the society. A knowledge society assumes that people are not simply passive, non-critical consumers of media.<sup>31</sup>

*Roadblocks and building blocks:*

The role of the commercial mass media, which is necessarily geared to its national or sub-national audience, could potentially be a serious roadblock to an open and equitable knowledge infrastructure for the region. Popular mass media is culturally specific and relies heavily on tacit social assumptions. News values are rigid and the criteria for relevance are predominantly parochial and often problem or crisis-driven. The quality and online media are more cosmopolitan and can transcend geo-political and cultural boundaries, but the majority of ordinary people with moderate to low education levels are not consumers of quality media. Mass media outlets around the region, whether deliberately or inadvertently, routinely inflame tensions between countries and communities rather than fostering cooperation or collaboration.

**(12) Shared physical and virtual spaces**

This dimension of knowledge infrastructure refers to the Japanese concept of *ba* the idea of a shared physical, virtual and normative space. As noted above, creative and innovative people tend to cluster in actual physical spaces that allow for close informal networks and the sharing of tacit as well as codified knowledge. It is theorised that codified knowledge is well suited for virtual spaces and electronic dissemination, but it is not the core attribute of genuine knowledge creation.<sup>32</sup>

*Roadblocks and building blocks:*

This suggests a roadblock for an equitable regional knowledge infrastructure. The fact that innovation and knowledge creation require actual physical proximity between people and are

---

<sup>31</sup> Sharma et al., 'Beyond the Digital Divide', p. 159.

<sup>32</sup> Ibid..

centred in particular nodes or cities automatically excludes those not present to a greater or lesser degree. Even in the European Union (EU), with its well-developed supranational institutions, innovation still takes place within particular geographical clusters.<sup>33</sup> The remainder of people would be the largely passive consumers of codified knowledge created elsewhere. Sharma et al. make the point that 'knowledge that is codified and imported is rarely a sustainable advantage'.<sup>34</sup>

### **(13) Knowledge sub-networks**

The final dimension of a holistic knowledge infrastructure is the importance of knowledge sub-networks. Similar to the previous point, this refers to 'a group of people with shared interest and expertise in a given knowledge domain'. The success of a knowledge society refers not only to its formal attributes, but also to its sub-networks that act 'as localized knowledge sharing and co-creation channels'. Such sub-networks provide tacit advantages to their members that are not available through formal contexts.<sup>35</sup> Associations of like-minded professionals, scientists, artists and scholars, or the transnational managerial class, would fit within this category.

#### *Roadblocks and building blocks:*

Knowledge sub-networks in the context described are cosmopolitan and in that sense constitute a building block for a regional knowledge infrastructure. On the other hand, they are elite groups, which raises the ubiquitous equity roadblock for those in the wider community.

## **PART 2: THE KNOWLEDGE BANK: CONCEPTS, BUILDING BLOCKS AND ROADBLOCKS**

The Outcomes Paper from the Second Track Dialogue suggests the creation of a knowledge bank to further the development of a regional knowledge infrastructure. The conceptual design of a knowledge bank for the Asia-Pacific region was tasked to the Emerging Leaders Dialogue. As a concept, the knowledge bank is underdeveloped and has not been theorised in the academic or policy literature. Existing "knowledge banks" that can be found on the Internet are online libraries or information repositories. Although necessarily incorporating these elements, the participants in the Emerging Leaders dialogue wished to develop the concept much further by incorporating social networking software to create a more dynamic, collaborative and interpretive virtual space.<sup>36</sup>

This section outlines some of the roadblocks and building blocks for a regional knowledge bank for the Asia-Pacific based on proposals and scenarios from the Emerging Leaders Dialogue. The Emerging Leaders approached the task of developing a regional knowledge bank from a strong normative position on the nature of knowledge. One of the participating groups in the Dialogue believed that before an institutional framework could be effectively established for a knowledge bank, a set of guidelines needed to be codified. The group of

---

<sup>33</sup> Lorenzo Cassi, Nicoletta Corrocher, Franco Malerba and Nicholas Vonortas, 'Research Networks as Infrastructure for Knowledge Diffusion in European Regions', *Economics of Innovation and New Technology*, vol. 17, no. 7, 2008, pp. 665-78.

<sup>34</sup> Sharma et al., 'Beyond the Digital Divide', p. 159.

<sup>35</sup> Ibid.

<sup>36</sup> See, for example, Emerging Leaders, Scenario (2).

individuals started from this proposition, based on “fears” and “hopes” for the development of a knowledge bank.<sup>37</sup>

Issues felt to be problematic were the cultural acceptance in some disciplines and societies of a knowledge based solely on profit and hierarchy; the failure to consider issues of trust over information (e.g., knowledge held on trust); and problems in translating, transferring and transforming knowledge. Drawing from these concerns, it was felt that the knowledge bank concept should be based on a number of fundamental normative assumptions: that knowledge must be shared and capable of crossing boundaries; it must also be able to cross language, cultural and disciplinary barriers; and its integrity must be protected through the acknowledgement of cultural and other heritage that may pertain to it. This may also include cultural custodianship where it exists.

It was then envisaged that these normative assumptions should be codified in a set of ethical guidelines along the lines of a constitution or set of guiding principles such as the Universal Declaration of Human Rights. The proposed code of governance for a regional knowledge bank has five elements, as follows:

1. We believe in the unlimited potential and interpretation of shared knowledge,
2. We believe knowledge is on trust for all people to create an environment of respect, peace and harmony, particularly in the Asia–Pacific region, but also more generally.
3. We believe that knowledge should not be viewed from a sole perspective, whether local, global, individual, collective or a single discipline, but something that can transcend these boundaries and interpretations.
4. We acknowledge the inherent limitations of any one medium of knowledge co-creation and sharing; in particular, the Asia–Pacific region suffers in terms of multiple language variances.
5. We acknowledge in the governance of knowledge the inherent contradiction between the proprietisation of knowledge (*intellectual property* as one example) whilst also advocating for the principles of shared knowledge and mutual education and collaboration.

It was further noted that these guidelines should not be seen as static, but rather as mutable and able to evolve with changes in contexts and environments.

The Emerging Leaders Dialogue produced a number of key concepts, ideas about drivers, and future scenarios for a knowledge bank, from which the following roadblocks and building blocks might be drawn. The project requires further development and is under-specified in the sense that the knowledge bank remains conceptual, with no mutually agreed tangible definition. There is also significant conflation between those driving development of a knowledge bank and its anticipated consequences or outcomes, the latter remaining

---

<sup>37</sup> The individuals were Participants in Group 5 (Ross Ashcroft, S Sahoo, Lennon Chang, Lauren Gorfinkle, Amy King, Shiro Armstrong, Rob Worrell, Donnie Maclurcan)

mostly normative. Most of these anticipated normative outcomes would have to be considered evolutionary or aspirational at this stage, given the more tangible and realistic appraisal of a potential regional knowledge infrastructure given above. As previously noted, the patterns of KE disparity and inequality in the region are consistent with longstanding patterns of socio-economic hierarchies and disadvantage, which are unlikely to change rapidly. The development of a regional knowledge bank is envisaged as a contribution to narrowing such disparities.

#### *Roadblocks:*

Roadblocks to a regional knowledge bank can be grouped into four themes.

#### **(1) The contested nature of knowledge**

It is recognised that knowledge is not universal, nor is it utilitarian or “objective”, as assumed by many policymakers and in certain disciplines and according to positivist worldviews. Knowledge is “made” or “mutually constituted” by constant human interaction. It is not natural or given. Knowledge is also a contextual and hermeneutic process. It does not strictly refer to “outcomes” or “productivity”. Knowledge is subjective and contextual in terms of language, culture and other social possibilities or categories. This can make it contentious when shared in cross-cultural interactions. Knowledge is not simply a function of science or R&D, but also derives from lived practical experience and tradition, and from ethical, religious or aesthetic insight or wisdom, which is very diverse across the region.

#### **(2) Equitable access**

Equitable access to the knowledge bank and meaningful participation in it require a certain minimum of hard infrastructure and education that is not present in poorer, remote and otherwise disadvantaged parts of the region. As the provision of such public goods is primarily a state responsibility, it is not a problem fully amenable to solution by transnational or supranational actors. Another potential roadblock to an equitable knowledge bank is that it may be too complex for the ordinary person to navigate or requires specialist skills to use effectively. In this respect, Lor and Britz suggest that knowledge must be ‘affordable, available, timely, relevant, readily assimilated, and in languages and contexts users can relate to and understand’.<sup>38</sup>

#### **(3) Profit and commercialisation: limited content/relevance**

A major roadblock to the knowledge bank as envisaged are the exigencies of the Intellectual Property Rights (IPR) regime, patents and commercialisation. The problems are either that content would be limited if it clashed with commercial imperatives, or that access to the knowledge bank, as a resource, would be limited to “authorised” business and government elites. Other concerns in this respect are that the bank would lack interactivity or the network element essential for creativity and innovation, and be simply a passive library; that it would perpetuate existing disciplinary boundaries with their established gatekeepers, and reinforce dominant ways of thinking; or that knowledge content would be appropriated for commercial purposes. In this respect, Peters argues that ‘hoarding creates a vicious cycle of

---

<sup>38</sup> Lor and Britz, ‘Is a Knowledge Society Possible without Freedom of Access to Information?’, p. 390.

knowledge restriction, whereas trust and reciprocity can create a culture based on a virtuous cycle of knowledge sharing'.<sup>39</sup>

#### **(4) Power, politics and policy**

A final set of roadblocks might be grouped around the theme of power, politics and policy. If knowledge is understood as relational and contextual, it must incorporate power relations. Participants were concerned that power gained from knowledge provided or shared would be used for coercion, control or to increase inequities. It goes without question that authoritarian governments in the region would infiltrate knowledge bank networks if they touched on sensitive political issues. From a policy standpoint, participants felt it would be a roadblock if the knowledge bank was expected to demonstrate productivity in an economic or financial sense. Another potential roadblock would be that the exigencies of "policy" would require the knowledge bank to be framed in a universal, technocratic manner that decreases sensitivity to difference.

#### *Building blocks:*

The building blocks or drivers for the knowledge bank were not well specified in the Dialogue and fall under the headings of the broader "contextual environment" and more proximate "working environment". It could be theorised that the contextual environment would provide the impetus for the creation of a knowledge bank in general terms, while the working environment would provide the impetus for the content of the knowledge bank and the types of nodes and networks that would develop or evolve.

#### **(1) The contextual environment**

The contextual environment is defined as the social, cultural, political, technical, economic and value-related drivers for the knowledge bank. The Emerging Leaders Dialogue does not develop this any further, but at an elite level across the region there is certainly strong economic, technical and policy impetus for regional knowledge- sharing, particularly in aspects of transnational crime and security; the provision of adaptive solutions to problems relating to natural disasters and ecological degradation; and in the more traditional development areas of the facilitation of trade, investment, innovation and R&D.

At the social and cultural level, exchanges have been growing in recent years with increased flows of tourism and international students and the region-wide dissemination of Northeast Asian popular culture. Similar to the knowledge infrastructure discussed above, the contextual environment seems positive and encouraging for an "elite" interdisciplinary regional knowledge bank that would facilitate knowledge flows and networks among interested stakeholders across a range of topics and functional areas. Guided by the code of governance outlined above, this could be a necessary first step or set of building blocks in developing a more holistic and equitable concept.

#### **(2) The working environment**

The working environment is simply defined as including "stakeholders", which can be thought of as those nodes and networks of people with a direct, proximate interest in a particular

---

<sup>39</sup> Peters, 'Classical Political Economy and the Role of Universities in the New Knowledge Economy', p. 163.

problem, collaborative work, or entrepreneurial enterprise. In a complex and ever-changing knowledge society, the identity of these stakeholders would be expected to cross over disciplinary, functional and geopolitical boundaries.

From here, Part 3 this paper turns to consider the conceptual scenarios for a future knowledge bank, which Dialogue participants were asked to construct. The themes developed in these scenarios are predominantly based around the normative concerns for access and interaction.

### **PART 3: SCENARIOS FOR A FUTURE KNOWLEDGE BANK**

#### **Dialogue Structure and Outcomes**

As noted above, the Emerging Leaders Dialogue was organised around a future scenario-building workshop. This workshop was divided into five main sessions over three days. Participants were led through a series of scenario-building stages. On advice from the facilitator, participants were not informed before the Dialogue about this method for exploring the concept of an Asia-Pacific Knowledge Bank. This was a move to avert a situation where thinking preemptively and making assumptions about the organisers' expectations of specific scenario outcomes would have limited participants' contributions during the workshop.

The scenario-building stages of the workshop are summarised below. The organisers believe that a summary of these stages is a useful Dialogue outcome in its own right, as it provides the 'model' of an effective format for cross-cultural dialogue. Importantly, it averts the pitfalls of conventional dialogues that can easily turn into a series of monologues by dominant members of a group.

#### **Step 1: Identifying key concepts that play a role in the development of a knowledge bank**

The workshop began with Session 1 where participants formed four groups to explore their assumptions about knowledge. The facilitator asked groups to identify key 'knowns' and key 'problematics' about the concept of 'knowledge'. This was an important starting point because it provided the opportunity for everyone present to gauge the diversity of participants' opinions and assumptions about knowledge. Participants' contributions here were used as a backdrop to scenario building in the following sessions.

Participants revealed:

- Knowledge is a process, and therefore more than merely information.
- Knowledge has context.
- Language and culture develop from different methods of acquiring knowledge.
- Knowledge transmits past learning into future experience.
- The notions of 'objectivity' and 'subjectivity' are important when discussing the concept of knowledge.
- Knowledge is value-laden.
- Knowledge is information combined with context and experience.
- Knowledge can be an unqualifiable outcome of any insight.



- Knowledge changes over time.

The groups then identified key ‘problematics’, that is, the key aspects of knowledge that make it contentious or difficult to define, or problematic in terms of its management or control. They also explored the implications of these ‘problematics’.

Participants revealed:

- Knowledge is not universal.
- The importance of one aspect of knowledge over another is defined by one’s culture. Therefore cross-cultural issues around the concept of knowledge and how culture contextualises knowledge are crucial to the ‘knowledge’ discussion since these issues shape individual interpretations and understandings.
- The subjective nature of knowledge often makes it contentious when interpreted by different individuals or groups.
- Some see the process of acquiring knowledge as important while others see the outcome of knowledge as more important.
- All parts of knowledge belong to various human-made disciplines and philosophy. It is not ‘naturally’ acquired.

On the basis of the above discussion, individuals were invited to write down their three ‘worst fears’ and ‘best hopes’ for the creation of an Asia–Pacific knowledge bank, and to attach these thoughts to two separate tables on opposite ends of the room. Participants were then asked to form two groups. One group was asked to identify the three most common ‘best hopes’ of those listed, and the other to identify the three most common ‘worst fears’.

Some of the key ‘hopes’ were that a Knowledge Bank can:

- be a means to decentralise political power
- provide a sense of collective human endeavour
- help build cross-border civil society in the Asia–Pacific
- increase sensitivity to difference
- provide a way for the most advanced technology to be shared
- facilitate greater understanding about the policymaking and other practices of different governments
- if used in schools, provide an incentive for students to want to attend school.
- allow for sharing ideas and information in a way that closes gaps between local and regional/global so that the disparities between groups are narrowed
- provide a means for sharing information from different perspectives that can be understood using different methods and approaches to knowledge
- increase the ability to exchange and share information across communities
- promote independent thinking
- by promoting greater collaboration and cooperation across the region, improve the quality of life, health and wellbeing of the region’s people.
- provide access to knowledge for people who have never had it, empowering marginalised people and helping to create a more informed society

- help in organising existing knowledge more effectively

Some of the key 'fears' were that a Knowledge Bank may:

:

- have negative social impacts
- have problems in accessing it
- be misused
- be used for profit making and limited to elites in business and government
- simply be a 'library'
- empower some people who will use it to coerce others or increase inequities
- be limited to or constructed by conventional discipline areas that reinforce only traditional styles of thinking
- be limited to serving political needs to demonstrate 'productivity'
- facilitate efforts to privatise knowledge, i.e., legal instruments might be used to limit knowledge production and access to knowledge
- become too complex and complicated for normal users, thus limiting access
- become an empty repository that no-one uses
- lead to greater centralisation of power
- fail to generate or redistribute knowledge and have only selective engagement
- merely replicate existing management systems
- decrease sensitivity to difference
- homogenise knowledge to a lowest-common denominator of English-speaking banality

The facilitator reassembled the two groups to summarise in one or two words the main *hopes and fears* identified in their discussions about the implications of driving forces, and the potential certainties and uncertainties of these implications.

Main hopes concern:

- shared information
- cross-cultural exchange
- social development and empowerment
- access to information
- regional cooperation
- peace
- organisation of information

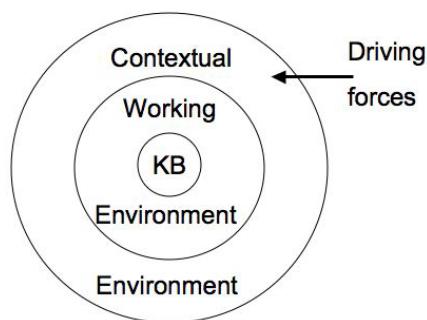
Main fears concern:

- misuse
- control
- access

- unwanted social impact
- loss of diversity

## Step 2: Identifying the drivers or forces that impact on the development of a knowledge bank

In Session 2, participants were invited to further explore the above-mentioned issues within the context of understanding the main 'drivers' or forces that potentially impact on the development of a knowledge bank. These forces are 'macro' drivers (economic, social and so forth) and include the makeup of the kind of constituents who would use the bank. This stage of the process aimed to build a conceptual model of the relevant environment which incorporates forces identifying the major trends and uncertainties by clustering them into two main environments: the working environment and the contextual environment. The working environment (WE) includes stakeholders. The contextual environment (CE) includes social, cultural, political, technical, economic and value-related drivers. The relationship between WE and CE is illustrated below:



For the CE, driving forces include the social environment, technological issues, economic issues and politics. Here participants identified as important: government policy, media, the requirements of certain business sectors, globalisation, political and social development, geopolitical issues, needs of consumers and financial sources. For the WE, participants identified as a potential source of impact the nature of the customers, communities, competitors, partners, and so forth.

## Step 3: Honing in on key factors to delineate the points on a Matrix

Session 3 involved further refinement of key issues. Here the aim was to separate the above-mentioned driving forces, fears and hopes into two main categories to be used as the common basis for developing scenarios. To do this, participants were asked in groups to identify (1) the main *implications* of the above-mentioned driving forces, fears and hopes for the development of a knowledge bank, and (2) what *certainties and uncertainties* these implications might encourage or incur.

## Step 4: Identifying quadrants from a Matrix

In Session 4, participants identified the two main factors that they felt would shape the development of a knowledge bank, and illustrated these as 'axes' on a matrix. These two axes, *interaction* and *accessibility*, were consequently used for the development of possible models of a knowledge, as illustrated in Figure 1. Interaction refers to the *nature and degree of interaction* allowed for or expected in the development of a knowledge bank. Accessibility refers to the *nature and level of accessibility* allowed for or expected in the development of a knowledge bank.

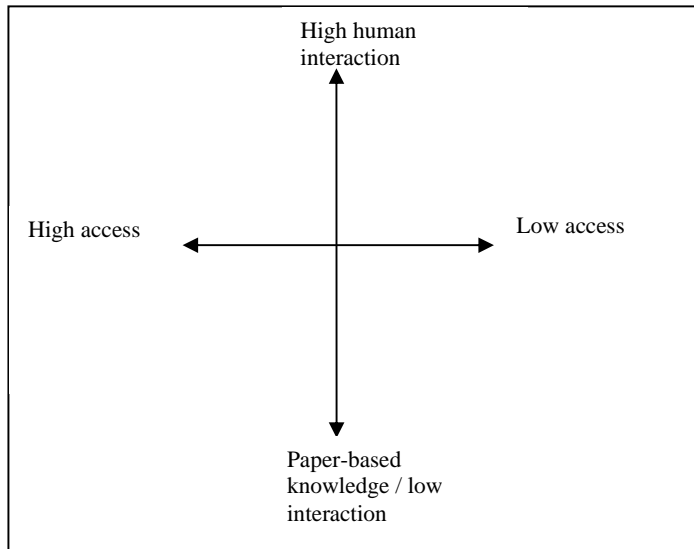


Figure 1: Interaction and accessibility axes for considering development of a knowledge bank

Four quadrants to define the perimeters of four different future scenarios identified the knowledge bank characterised by:

Scenario (1) low accessibility and low levels of human interaction

Scenario (2) low accessibility and high levels of human interaction

Scenario (3) high accessibility and high levels of human interaction

Scenario (4) high accessibility and low levels of human interaction

### Step 5: The four future scenarios

Participants were asked to join one of the four scenario groups for discussion.

Summary of each of the four scenarios:

## SCENARIO 1: A KNOWLEDGE BANK CHARACTERISED BY LOW ACCESSIBILITY AND LOW LEVELS OF HUMAN INTERACTION

Participants: Rae-Chi Huang, Caitlin Byrne, Teh Chew Peng

Scenario: Low Access / Paper based Interaction  
Ten-year scenario plan 2010 – 2020, based on three possible scenarios:  
**Custodians for Regional Cooperation, Alliance of Evil (Dictators) and the Lamé Duck Model**

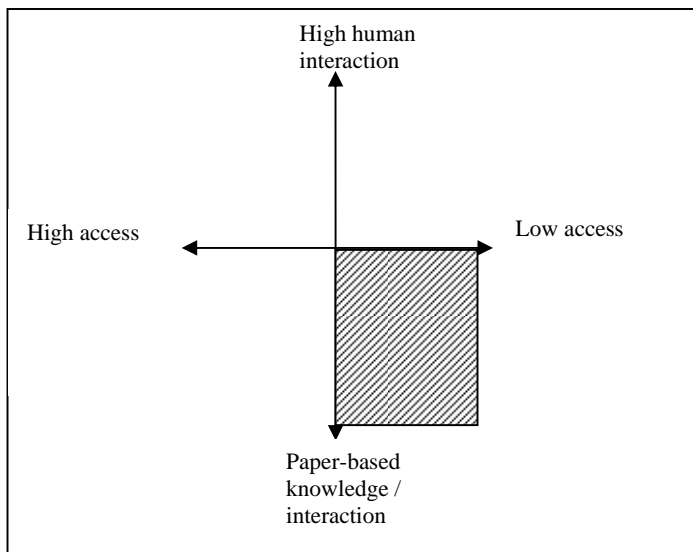


Figure 2: Scenario 1 – Low Access / High Paper-based Interaction

### Background

This group explored future knowledge bank scenarios in an environment characterised by low access and paper-based interaction as defined below. The group developed three models.

It interpreted 'low access' to mean high levels of political control and power inequities, low levels of accessible information or knowledge as a result of low literacy levels, poor language skills, low socio-economic conditions and poor infrastructure across the general community. Discussants acknowledged that in some cases low access may be synonymous with "appropriately (low) access" where groups of people have little need or interest in access to information or knowledge because it has little practical use for them in meeting the daily challenges of life. This is a situation where the political environment is tightly controlled, as in a dictatorship, and fosters an information "elite" whose members' access to information increases with their access to power. Some within the elite may have high levels of literacy, education and language skills that enable their access to knowledge via a traditional data/information-based system.

Paper-based knowledge reflected the preferred format and method of interaction around information since it is usually factual, data-based, and recorded in a more permanent format than most other means. Here the environment is not conducive to dialogue or subjective perspectives. Sophisticated or structured technical or scientific data/information is more highly regarded and valued than free-flow or creative knowledge. The environment does allow for a repository of information with rapid retrieval and transition of information via structured and sophisticated systems if required.

An initial concern in the discussion was that this environment would be largely unreceptive to the concept of a knowledge bank or knowledge trust. (The assumption that this environment was negative was challenged, on the recognition that preconceptions could pre-empt ideas about possibilities and outcomes; the environment was identified as neutral from the start of the exercise).

Recognising this environment as generally unreceptive to a knowledge bank, all agreed that the knowledge bank/trust would not evolve without a significant trigger or impetus. Furthermore, the shape and role of the bank that subsequently emerged as a result of the trigger would invariably be underpinned by traditional notions of knowledge and bank, with strong structural foundations and a scientific focus. However, in the preferred scenario (option 1), the evolution of the bank may, over time, start to have an impact on, or even shape, the environment in which it operated by fostering networks and interactions based on trusting relationships and resulting in changes to both access levels and types of knowledge/interaction.

### **Models**

The discussion highlighted how a Knowledge Bank would be unlikely to emerge in this environment without the impetus provided by a key trigger such as an event (e.g., natural disaster, disease / threat of pandemic, etc.), that required rapid response and cooperation. The group acknowledged that there may be several trigger points through the 10 year forecast. Uncertainty depending upon the political and structural forces at play within this environment, and the nature and timing of key triggers or events, three distinct “Knowledge Bank/Trust” meant the need for three models to depict possible future outcomes:

Model 1: Custodians for Regional Cooperation

Model 2: Alliance of Evil (Dictators)

Model 3: Lame Duck

#### **1. Custodians for Regional Cooperation – Knowledge Trust Model**

The basic premise of Model 1 is that this a highly controlled, though benign political environment would have an information/knowledge repository founded on traditional notions of knowledge. Here the approach to a Knowledge Trust would involve layers – building trust in the knowledge (via visible positive outcomes), and subsequently building trust in person-to-person relationships around the knowledge.

Key features of Model 1 environment include:

- sophisticated systems allowing for rapid retrieval and transmission of information / knowledge;
- political agreement – as distinct from being politically aligned;
- leading and coordinating structure – based on aligned universities (non threatening to political structures);
- presence of a structured mechanism that would, among other things, identify hubs and channels promoting exchange and cooperation, allow for dissemination of knowledge, and enable development of person-to-person networks (i.e., gradually build confidence in human interaction around the traditional repository model);
- transparent processes and strong governance, with a highly regulated and well developed administration;
- strong and clear focus on certain fields including science, medicine and technology, building and infrastructure, and transport.
- strong leadership via a Board of Trustees who would represent various elements of the community;
- eventually, knowledge bank networks that could be used for cultural exchange.

## **2. Evil Alliance Model**

In the environment for Model 2, a high degree of political control is reflected in a culture of corruption and elitism. Here the Knowledge Bank emerges as a mechanism for maintaining and building power, while excluding vast portions of the people and communities in which they live.

Key features of Model 2 include:

- corrupt political culture (psychopathic leadership);
- exclusive control of information as source of power – access highly restricted;
- profit driven, non-transparent operating style driven by strong government-corporate alliances;
- exclusion of broader community (culture does not support outcomes for the greater good);
- data and information subject to manipulation to maximise profits;
- ethical practices not valued or enforced – no boundaries;
- potential for information to be developed and shared among the elite for socially destructive purposes;
- military/militia may be called on to maintain control over information resources.

## **3. Lame Duck Model**

In an environment of high control and restricted access to information, the Knowledge Bank outcome may be purely symbolic, the Bank being a repository of information that is neither used nor maintained, and as a result is the Bank is not effective. Barriers to use of the Knowledge Bank would concern intellectual property, patent rights and resistance to sharing

power. Circumstances for Model 3 may start out along the lines of Models 1 and 2, but slide into 'lame duck' mode depending upon the triggers / events that occur.

The discussion recognised that the fluidity of the major sources of change in society – particularly natural disasters, conflict, disease, etc. or major shifts in political regimes – may result in some shifting of the Knowledge Bank / Trust between the models. Each of these three models reflect different contexts and purposes, but they should not be seen as necessarily mutually exclusive.

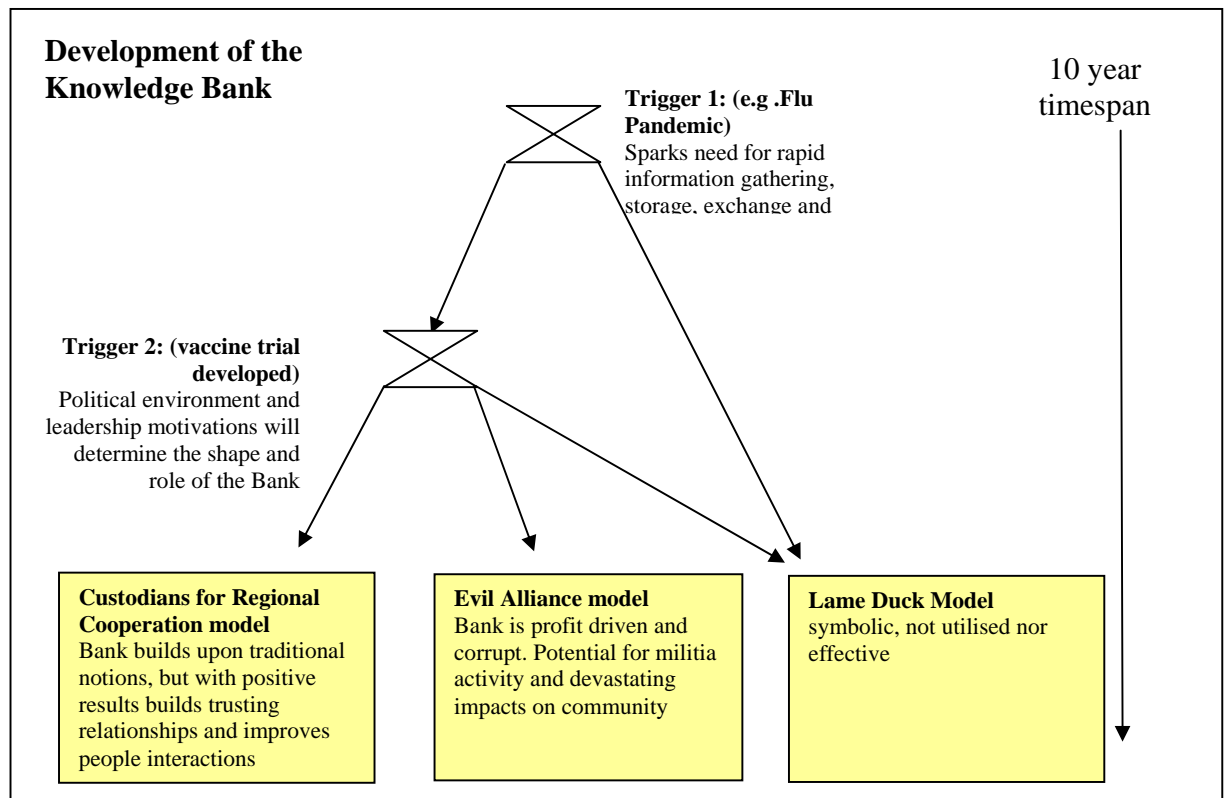


Figure 3: Possibilities for Development of the Knowledge Bank under Scenario 1



## SCENARIO 2: A KNOWLEDGE BANK CHARACTERISED BY LOW ACCESSIBILITY AND HIGH LEVELS OF HUMAN INTERACTION

Participants: Jennifer Firn, Siqi Fan, Nunik Kusumawardani, Tania Miletic, Virginie Tassin and Wilson Wong

Scenario: **Knowledge Space (K-Space):** People Building Knowledge Together. This model is based on a set of imagined 'triggers' in the Asia-Pacific region over the coming decade that precipitate the development of K-Space.

Knowledge space (K-space) is a concept whereby people immerse in enduring relationships with the ultimate goal of building knowledge. The rationale is that we live in the technological age with extensive access to large amounts of information, reliable and unreliable, through the World Wide Web and other technologies. This has resulted in confusion concerning the notion of data, information and knowledge. In K-space, knowledge is defined as the values (e.g., semantic, pragmatic) that people generate through applying an interpretive process together with contextual inputs (e.g., past experience, visions for the future) to existing information/data at multiple levels. Computers and the World Wide Web have resulted in increased access to information and data, leaving individuals to critically make sense and derive values from such large quantities of information available. Overtime, the development of chat pages, blogs and more formalised branded tools such as Facebook®, Skype® and Twitter® have increased social interactions between people. These new mediums have been largely focused on developing social relationships (e.g., friendships). At the same time, student and formal academic exchanges and research collaborations that actually bring people together on the ground have been growing between countries and institutions. These facilitate the exchange of knowledge and relationships in specific spheres and offer some potential for person-to-person exchange. However, they are constrained by the financial and institutional limits that come into play when people spend periods abroad. Further, these 'exchanges' often extend little beyond those people who are directly involved and so remain contained within specific disciplinary or professional fields.

K-space offers something different. It will facilitate opportunities for networks of people interested in common questions, issues and ideas to participate in lively and dynamic interactions with the ultimate goal of learning across communities, disciplines and cultures. K-space will not be centrally controlled. Instead it will be moderated by each "people network" or node within the k-space network, as relationships develop and extend through mutual interests. The need for collaborative and creative uses of knowledge and approaches to problems facing our local and global communities (such as climate change, etc.) will need to be met with a range of experiences and areas of expertise. The Asia-Pacific region, with its commitment to developing a knowledge economy in a context characterised by diverse levels of development within and across countries, and its disproportionate number of natural and man-made disasters, will be positioned to lead in developing a new way to harness the potential for using knowledge and human interaction. It will also need to protect against a future where environmental circumstances (such as pollution, cost of fuels, etc) require local bases and applications with dynamic human interaction across K-space. We

refer to this as a context of continuing 'low access' and 'high human interaction'. In this way, K-space will be strongly about people and their needs, and also be characterised by limited access because of the creation of "people networks" with common goals.

Now technology is being developed rapidly and there are future plans for the Semantic Web (an evolving development of the World Wide Web where it will be able to understand and satisfy the requests of people and machines to use information and services). It is therefore likely that K-space will include the capacity for interactions within cyberspace between people from different regions. For this reason, we do not specifically define the technology that will provide the framework for K-space, but instead define the key functional traits for K-space that can ensure it is people-focused as opposed to merely information/data focused. These traits include: needs-based, lively and dynamic, interactive, multi-faceted, unconventional, and non-institutionalised. In short, any new social, transport and communication technologies in the future are simply enabling tools to hasten the realisation of both a real and a virtual K-space. Coupled with sound strategies and non-institutionalised cooperation focusing on the interaction between people, the K-space model will come into fruition. The ultimate long-term goal for K-space will be to ensure it is useful for a wide range of users, including those who are most disadvantaged economically, socially and culturally.

We predict that over the next ten years a number of events in Asia-Pacific and the world may act as triggers for the development of a knowledge-building space such as K-space. This development is likely because K-space is highly people-focused, but access to it is limited because of people networks (see Figure 4).

#### Predicted Events

January 2010: In response to the leadership shown by Asian-Pacific countries at the United Nations Climate Change Conference, Copenhagen, December 2009, increased cooperation and exchange of ideas is identified as a necessity in the region.

2011: A group of emerging leaders who have attended a University Scholars Leadership Symposium on Climate Justice in Malaysia in August 2010 develop a policy document for increased knowledge-sharing across the Asian Pacific, particularly concerning issues of sustainability, natural disasters and economic inequalities.

2012: A devastating earthquake and tsunami affecting southern Asia will accelerate cooperation between countries and act as a catalyst to increase discussions on the most effective mechanisms for delivering aid and development opportunities within the region.

2013: Implementation of a ground-breaking communication technology tool within the region means more people are capable of sharing information and discussing issues and ideas. This technological advance enables more specialised exchange within the region between businesses and corporations with common interests, health industries and early warning systems for natural disasters.

2014: Misuse of this technology in relation to sensitive security issues within the region leads to ASEAN identifying the need for a more effective geopolitical mechanism for the region.

2015–2016: A major contract is signed between the creators of the new technology within Asian-Pacific and the Brazilian 2016 Olympic committee. The new technology will be modified to facilitate communication, expert services, and knowledge sharing in order to support the upcoming Olympic games.

2017–2018 Collaborative agreements within the region mean the technological frameworks are modified for use in educational institutions. This means a lecturer residing in China can teach a course in computer programming at a university in Australia, or high-schools in Indonesia can have teachers from Singapore contributing to the curriculum.

2020 Incremental advancements in communication technology have led to the development of K-space, the space about people – not just institutions, corporations and governments – sharing ideas and information and building knowledge across what were previously unbridgeable spatial and cultural divides.

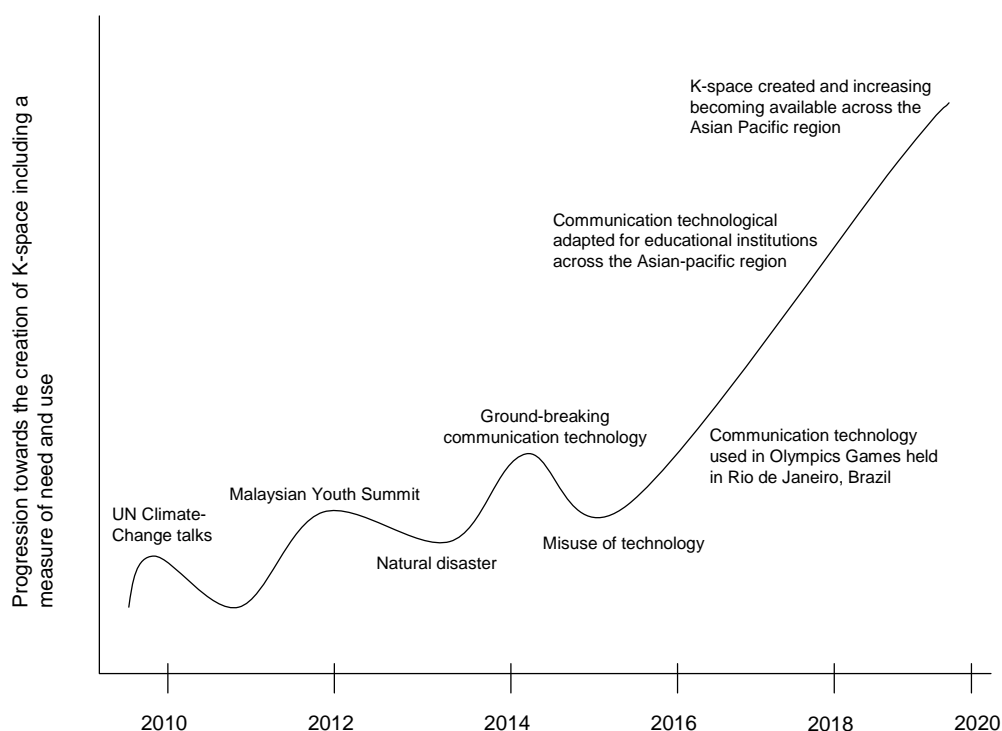


Figure 4: Predicted Triggers for Progression and Regression in the Creation of K-space\*

\*Depicts possible events within the Asian-Pacific region and beyond that will increase the need for the type of knowledge-building that is people-focused rather than simply information-based.

### SCENARIO 3: A KNOWLEDGE BANK CHARACTERISED BY HIGH LEVELS OF ACCESSIBILITY AND HIGH LEVELS OF HUMAN INTERACTION

Participants: Samsung Xiaoxiang Shi, Pengfei Li, Yougan Cheng, Delia Lin, Yuan Zhang, Yutian Guo

#### A Self-Adaptive Knowledge Tree (SAKT) – the Future of Networked Information Societies

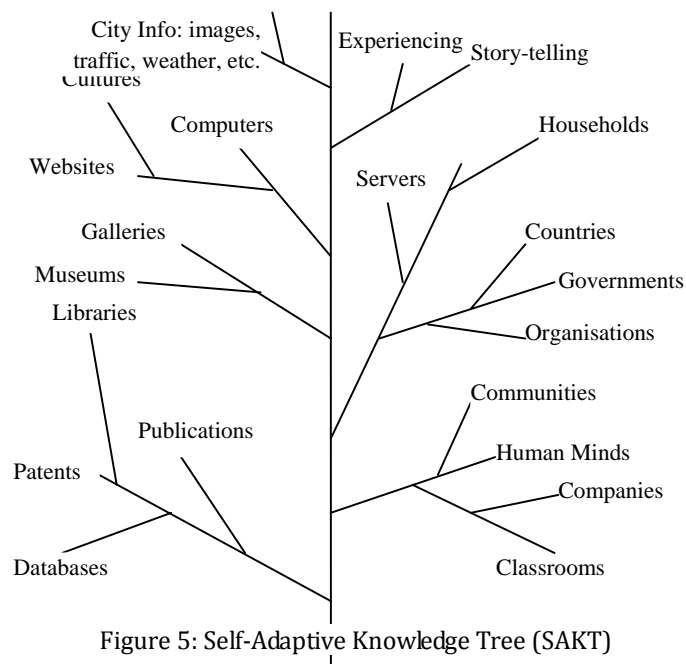


Figure 5: Self-Adaptive Knowledge Tree (SAKT)

#### Introduction

We envision an Asia–Pacific knowledge bank as a *Self-adaptive Knowledge Tree (SAKT)*. SAKT is a self-adaptive knowledge ecology composed of interrelated human minds, networked information and communication infrastructures, and unlimited flow of knowledge. The ultimate driving-force of this ecology is human beings' creative minds and individuals' experiences. It is characterised by a high level of interaction between human beings, open access to information, and the capacity to keep individuals immune from undesirable over-exposure.

#### Interrelated Human Minds

The growth of knowledge is a relational and evolutionary process enabled by interacting human minds. It is a population process which means knowledge must be communicated and shared by people and communities. The connectivity of agents (individual human beings) and agencies (units of individuals, i.e., companies, communities, organisations, etc.) is critical to the trajectory of knowledge growth. The SAKT connects agents to agents, agents to agencies and agencies to agencies in various forms and by various means. Classrooms, schools, households, communities, companies, governments, museums, libraries, individuals, etc. are all interconnected with each other since through the SAKT, human minds are

interconnected and interrelated. Nevertheless, the flow and evolution of knowledge is driven by human minds, which are effectively the blood of the SAKT tree.

As a part of the SAKT, you can ask the Tree any question – What, How, Who, Where –and the SAKT will tell you the answer or locate those who are willing to tell you the answer. Meanwhile, your questions become ‘knowledge’ to others and to the SAKT. You might be afraid that the SAKT will somehow become a living creature like the horrible “Skynet” or “Matrix” of Hollywood movies. Such a concern does not bother us. The SAKT, indeed, is self-adaptive but not unwelcoming.

The school and classroom are also parts of the SAKT. Education will be a process not only of learning but also, more importantly, of experiencing. Enabled by the networked information and communication infrastructures, education will be expanded far beyond a physical classroom. Schools and classrooms will be located physically in a given city. However, empowered by the advance of technologies and infrastructures, teachers can assume a very minimal role because students will be able to learn from the experiences of themselves and others.

### **Interface between Humans and Machines**

In the age of the SAKT, the interface between humans and machines is hardly visible or at least is insignificant. Of course, the SAKT comprises machines (computers, laptops, servers, etc.), software applications, and wire or wireless connections. However, the machines and information infrastructures would be mere accessories to, and driven by, human minds. Think about how Wikipedia works and you may then have some clue as to the rationale of the SAKT.

### **Open access to knowledge**

The operation of the SAKT relies heavily on free flow of information and open access to knowledge. A strict and pervasive intellectual property regime, obviously, is unfavorable to this ecology. We encourage a flexible legal framework for intellectual property, and for copyright in particular. We encourage the prevalence of the ‘copyleft’ movement, which favours open source software and creative commons. Most fundamentally, traditional content owners such as libraries, museums, archives, governments, database operators, etc. are required to make their content available to the public, particularly through the SAKT.

### **Immunity of Undesirable Over-exposure**

We are concerned about issues such as privacy and unwanted mental impacts. The SAKT is a self-adaptive system to a large extent because it can prevent trespassing on individuals’ privacy and keep individuals immune from unwanted negative impacts on their physical and mental health. It can also handle the problem of information safety and desirable national security.

### **Summing Up**

From the very beginning, we all believe that “knowledge bank” is not an appropriate term to describe what is needed in terms of knowledge-sharing in our region. We need a better way of wording this concept. We come across many words including “knowledge system”, “knowledge landscape”, “knowledge environment”, “knowledge space”, etc. But we want a term that is alive! “Knowledge tree”, thus popped out of our minds and we all love it! It is our

hope that the future of our information society (the SAKT) will be driven by human's creative minds rather than by machines or technologies. The SAKT is not only "digital" but most significantly it is "human"!

#### **SCENARIO 4: A KNOWLEDGE BANK CHARACTERISED BY HIGH LEVELS OF ACCESSIBILITY AND LOW LEVELS OF HUMAN INTERACTION**

Participants: Wang Dongbin and Wang Wei

##### **Conceptual Issues Related to the Knowledge Bank**

Excessive protection and demarcation of knowledge tends to discourage a 'commons' approach to knowledge. Therefore, we believe that the Asia-Pacific region should now take the lead in surmounting the limits of the Europe-US intellectual property regime. It should establish a more rational, fair and just system of intellectual property by creating an open and sharing knowledge bank. We should consider a knowledge bank as a 'commons' approach, conducive to the creation of knowledge and impacting positively on social interests (see Nobel Prize winner 2009 of Economics, Elinor Ostrom: Understanding Knowledge as a Commons).

This group chose to base its knowledge bank ideas on the high access--low interaction quadrant partly because high-access means mass users. More users lead to more contributors to the knowledge bank. Continued renovation and advancement of a knowledge bank is crucial in the age of information, so the greater number of users and contributors, the better. In addition, low access would increase transaction costs, which would be harmful to the operation of a knowledge bank. High access brings about a positive economy of scale, which will enhance the social benefits of a knowledge bank.

The two participants in Group 4 chose the low interaction (i.e., paper-only interaction) end of the axes from which to base their modeling because they believe that this would provide more accurate and stable knowledge content. It is not to supply information for users to exchange between each other.

##### **Structure of the Knowledge Bank**

Like some of the other groups, this group identified some issues likely to emerge in the coming decade that may politically affect the development of their bank. The structure of an Asia-Pacific knowledge bank, they surmised, can comprise three tiers: content, technology and institution. The content tier involves the kind of knowledge discussed over the first two days of the Dialogues. The technology tier refers to internet, mobile phone and program platforms, that is, the software and hardware supporting an Asia-Pacific knowledge bank. The institution tier involves legal and social environments such as intellectual property, copyright and political structures.

To promote construction of content for a knowledge bank, laws providing open access to information need to be developed and should be taken as the starting point. Furthermore, governments should be the first participants. They should be required to post their policies

on the knowledge bank. Organisations like universities and research institutes should be allied with knowledge bank, and the general public should be encouraged to participate in it.

### Possible Problems

Knowledge is power, as the saying goes. Building an Asia–Pacific knowledge bank will inevitably encroach upon domestic politics, particularly hegemonic issues. No matter where construction of a system for sharing knowledge in Asia–Pacific begins, an Asia–Pacific knowledge bank will not be successful unless the problem of hegemony can be properly addressed.

The digital divide will determine whether high access can be realised, especially when less-developed countries in the Asia–Pacific region participate in this knowledge bank. Solving the digital divide problem is a key issue for UN Millennium Development Goals and was one of the keynotes at the World Summit of the Information Society (see <http://www.itu.int/wsis/index.html>). The process of building an Asia–Pacific knowledge bank should be simultaneously a process of addressing the digital-divide problem in the Asia–Pacific region, as well as creating such a bank.

## PART 4. SUMMARY OF KEY OUTCOMES

The chief outcomes of the October 2009 Emerging Leaders Dialogue can be summarized as follows.

1. The Dialogue provided **an outline of the nature of both the barriers** that are likely to hinder development of regional cooperation in knowledge-based infrastructure-building and **the building blocks** that need to be in place to firmly ground the structure so that scaffolding can be successfully constructed upon it for sustainable operation and continuous development.
2. The Dialogue provided detailed **exemplars of the kind of scaffolding required** to share knowledge and build knowledge infrastructure in the 21<sup>st</sup> century.
3. Conduct of the Dialogue was itself **a ‘model’ of an effective format for cross-cultural dialogue**. This format, using the Participatory Future Scenario-building method for discussion, encourages highly innovative thinking and breaks down the cultural barriers that typically hinder progress in conventional dialogue formats. Hence it maximises opportunities for all participants to voice their opinions.
4. The Dialogue provided selected participants from across the region with **opportunities to meet Chinese and Australian** people working in the diplomatic, education and business sectors. These people included Mr. Trevor Holloway, Economic Counsellor, Australian Embassy; My Iain Watt, Minister Counsellor, Australian Embassy, Mr. Shen Yang, Deputy Director-General, Department of International Cooperation and Exchanges, Ministry of Education; other Ministry of Education representatives; members of the Australian Chamber of Commerce in Beijing; and members of the Australia–China Alumni Association. These

contacts are valuable for participants who plan to make Asia a future work destination, and ultimately for the region, in which their collaborations will bear longer-term fruit.

5. Interspersed throughout the Dialogue were several talks and meetings with various groups, including a tour of Beijing's Technology Park and a software company within the park. This provided opportunities for participants who specialise in information technology to **develop contacts in China** and cultivate opportunities through people-to people connections that in the longer term may have very rewarding benefits within the region.

In summary, much of the material developed in the Emerging Leaders Dialogue is best described as concerned with the anticipated normative outcomes or aspirations for the knowledge bank. These are not "drivers" or building blocks of knowledge banks in any causal sense. Nevertheless, the discussions concluded that a regional knowledge infrastructure encompassing the more developed countries and areas of the region is quite feasible, with many of the building blocks already in place to some extent, and ready to be built upon. However, the discussion in Part 1 and 2 of this paper clearly shows that a supranational knowledge infrastructure would likely have a number of serious limitations or roadblocks with regard to restrictions on content and flows, and also access and equity issues. Political and commercial imperatives would likely restrict the types of knowledge that could freely be diffused and consumed, while traditional socio-economic patterns of development disparity in the region would necessarily dictate the level of access people would have to knowledge infrastructure.





Griffith Asia Institute

<http://www.griffith.edu.au/business/griffith-asia-institute/partnerships-collaboration/australia-china-futures-dialogues>